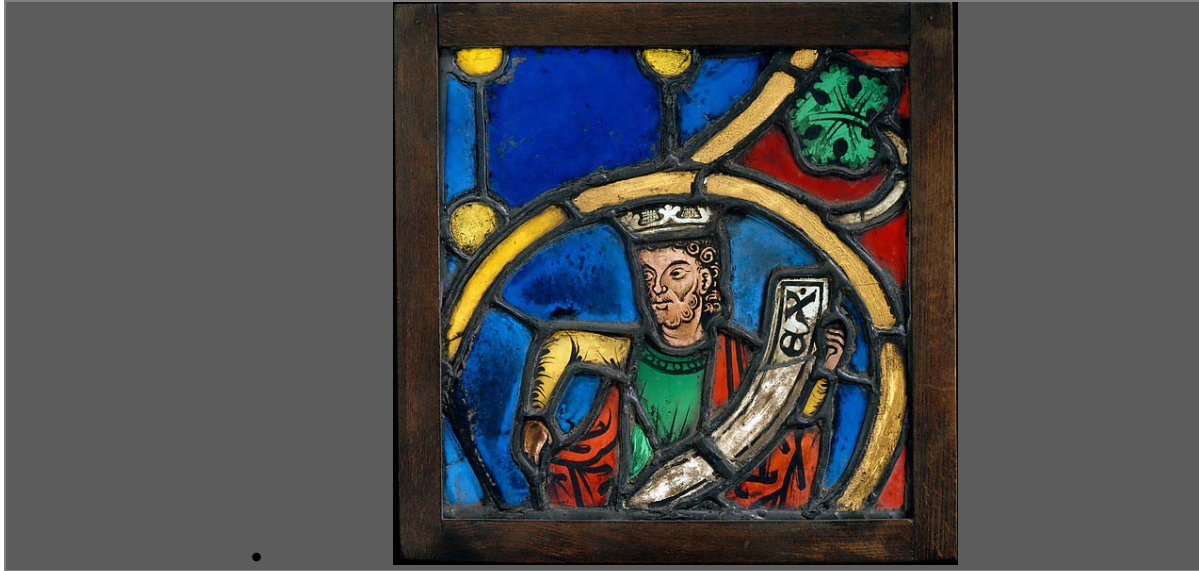


A STUDY IN STAINED GLASS

PROPHET KING FROM A TREE OF JESSE WINDOW



GLASS ANALYSIS



Prophet King from a Tree of Jesse Window

Date: ca. 1260–70

Geography: Made in possibly Wurzen, Saxony or Thuringia, Germany

Culture: German

Medium: Pot-metal glass, white glass, vitreous paint, silver stain ****

Dimensions: 9 1/16 x 9 1/16 in. (23 x 23 cm)

Classification: Glass-Stained

Credit Line: The Cloisters Collection, 2000

Accession Number: 2000.406

On view in [Gallery 008](#)

ANALYSIS OF GLASS

I spoke over the phone to Timothy B. Husband, Curator at the Cloisters in New York City, regarding this particular piece. The following points describe what was discussed and agreed upon.

- 1) ****The yellow glass is in fact a yellow glass and not clear glass, or another glass silver stained as the Cloisters write up on this piece indicates. The piece is dated ca. 1260-70 which is too early for silver staining to be in use. The error in the Cloisters write up was a mistake that Mr. Husband said he would see rectified.
- 2) There are a few shades of blue glass. This could be due to restoration or different batches of blue used in the creation of this piece.
- 3) The two pieces of blue glass in the lower left hand corner was most probably a repair and was one piece.

- 4) The green tunic on the Prophet king in the piece shows it broken into two pieces. This was most probably a repair and the tunic was one piece.
- 5) The white banner that the Prophet is holding was most probably one piece but repair and restoration made it 3 pieces. The restoration is indicated by the difference in the vitreous paint between the two lower sections and the top section. Also the writing is missing on the two lower pieces. It most probably would have a king's name followed by REX. Only the EX remains.
- 6) The dark splotches throughout the piece prevalent in the yellow, white, and blue glass and some in the other cases are most probably due to dirt and corrosion of the glass over time.

I printed a copy of the Cloisters photograph and measured the lead came per Mr. Husband's suggestion. It is $\frac{1}{4}$ inch in diameter. I also used the same picture as the pattern for the piece I am making. The thickness of the came can't be determined from the picture and Mr. Husband could not provide an answer.

The dimensions of the piece are $9 \frac{1}{6}$ inch by $9 \frac{1}{16}$ inch.

The three portions of the piece that were restored (tunic, banner, and blue glass), I have decided to return to their original state.

I am using all of the same shade of blue instead of trying to match the variations.

PROCESS OF CONSTRUCTION

CREATE THE PATTERN

For detailed information on patterns please refer to the “Introduction” section of the research/experimentation book.

The pattern I am using is real size photograph of the original glass. Please note that the colors in this documentation may not match the colors of the actual piece due to the difference of pigments of the ink in my printer and the formulation of the glass.



CHOOSE THE GLASS

For detailed information on making glass please refer to the “Making glass” section of the research/experimentation book.

I decided to go with antique glass as that is the type of glass I feel comes closest to the look and texture of period glass. The colors are red, yellow, blue, white and green



CREATE THE INDIVIDUAL PIECES

For detailed information on glass cutting please refer to the “Glass cutting” section in the research/experimentation book.

- 1) Trace glass pieces from pattern making sure to take into account the lead depth of the lead came (size of the leaves and thickness of the heart). This is a best guess scenario. The only way to get an accurate measurement is to take the original apart. I don't think the Cloiseters would have liked that.

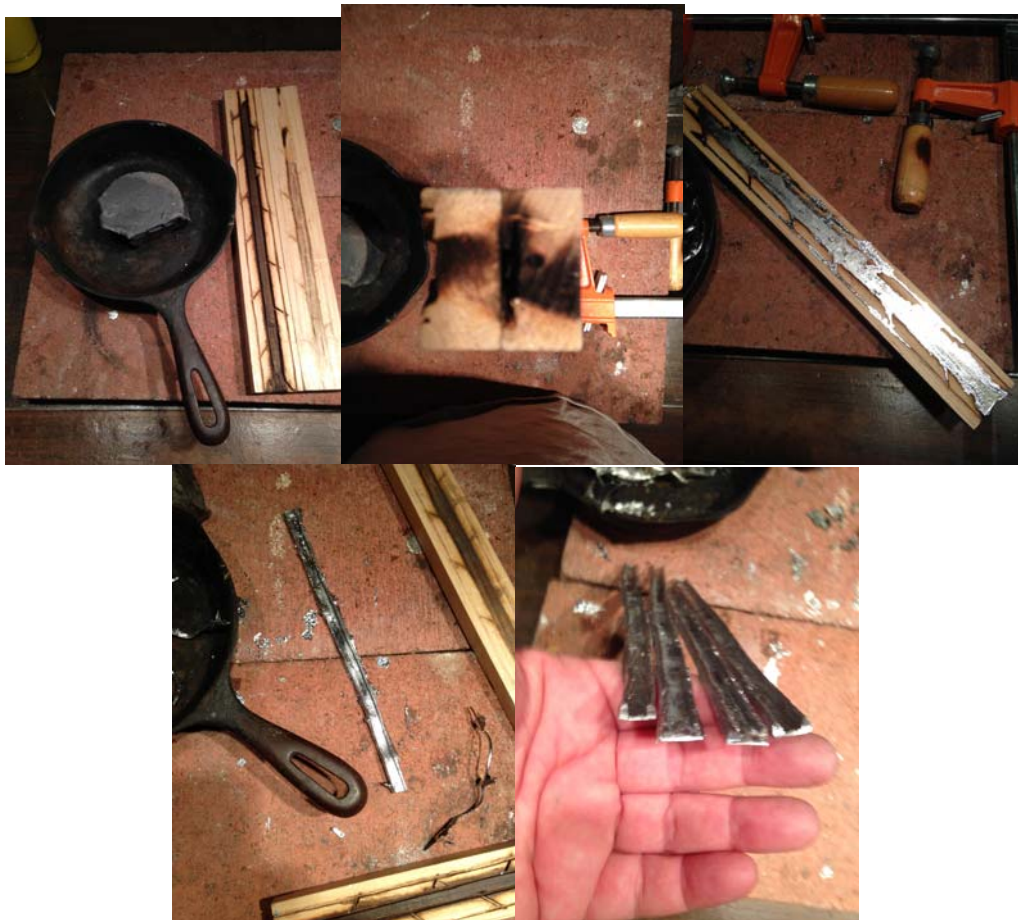


- 2) Cut the glass. In period I would have used a hot dividing iron. (see display). But for this project time was a factor so I used a commercial glasscutter.

CREATE THE LEAD CAME

For detailed information on lead came please refer to the “lead came and solder” section of the research/experimentation book.

- 1) Creating the lead came: The first thing to do is figure out how much lead we need and the size. I measured the thickness and length of the came from the picture. I determined I would need about 36 inches of U came for the sides (plus a little extra just in case) and 144 + inches of the H shaped came for the inside. I also determined that I needed 4 pieces 9inch lengths of U came and 43 pieces of H came of varying lengths.
- 2) Now that we know what we need its time to make the came. I started with the U came. I had molds already built so I decided to use them. I can make the U came by clamping the flat side of one of the molds against the carved side of the other. I melt the lead and pour it into the opening at the end of the mold. Let it cool pull the two halves apart then remove the lead came and trim down the excess.



Unfortunately my mold only lasted long enough to create the U came and solder. This mold has been used for several other projects. Each time the molds are used a little more of the wood deteriorates to heat and stress by removal of the lead (see molds on

display). Due to lack of time I could not make another. So for the H came I used a commercial lead.

PLACE THE GLASS INTO POSITION



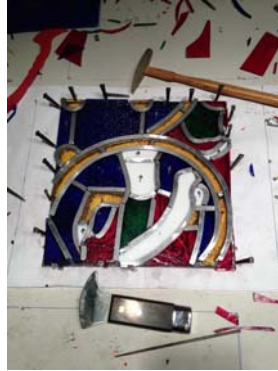
1) As you can see in the photograph I have several pieces already in place with lead came wrapped around each piece and held in place by flat nails. The flat surface of the nails keep the glass pieces from rotating around the nail. Had I used round nails, the curved surface of the nail would add extra pressure on the glass increasing the chances of it cracking, or digging into the lead came.

2) Once a piece of lead has been fitted to the glass it must be trimmed. To this we use a lead knife. The knife is placed on the lead where it is to be cut and with a gentle pressure and rocking the blade back and forth on the lead, the knife will work its way through the came.



3) All of the pieces have been cut and wrapped with lead. The hammer is used to gently tap the lead and glass into place as well as installing the nails.

Interesting side note: As I discussed in the analysis portion of this paper, the two pieces of blue glass in the lower left hand corner were originally one piece and I was going make it that way in this piece. However. While working with that piece of glass, it broke in the same way as in the original so I left it that way.



ADDING FEATURES TO THE GLASS

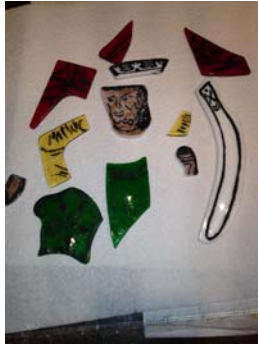
For detailed information on glass stain please refer to the “Glass stain” section of the research/experimentation book.

- 1) Normally I would have done this before placing the glass in the lead, but seeing that piece is being created from a photo and that there were a lot variables in making things fit, I wanted to get everything lined up first. To make the Grassaile or black stain, I used the recipe from Theophilus’s Divers arts. This called for equal amounts of crushed blue and green glass and copper oxide. To make copper oxide, heat a piece of copper. It will turn black. Cool it quickly and the black copper oxide will pop off.



- 2) The three ingredients get mixed together. Add a few drops of wine to make a paint. Paint the staining onto the glass, and place it into a kiln at about 1300 degrees.

Side note. In period they did not have thermostats in their kilns so they had to keep checking the glass. The thermostat on my kiln died so I had to check the glass every so often to make sure I wasn't making a puddle of glass.



REASSEMBLE THE PIECE

Next I reassembled the piece adding in the side pieces of U came. I ran into a slight problem here. The came I made had a thicker profile than the commercial H came. Had I used my own came then there would not have been a problem, or if I used commercial U came. What ended up happening was the leaves (top and bottom flat parts of the came) on the U came I made sat higher than the leaves on the commercial H came. For soldering this would pose a problem. The solution was to gently bend the leaves on the U came down so that they touched the H came.

SOLDER THE JOINTS WHERE THE PIECES OF CAME

I made the solder combining 50/50 mixture of tin and lead by weight. I used the mold from the lead came to cast the solder. As I didn't need a lot of solder, the molds could be used this last time. I fluxed each intersection of lead and used a commercial soldering iron to melt the solder onto the joints. I could have used my dividing iron to accomplish the soldering but did not have a heat source to heat the iron. For all intents and purposes a soldering iron is the same thing as the dividing iron. A hunk of metal that is heated by electricity instead of fire.

The last step is to mudd the piece. A whiting is used to fill the gaps between the leaves and the glass. Once dried it locks the glass in place and waterproofs it.

THE FINAL OUTCOME

Our piece is now done and ready for display. Normally I would have put a frame around it for display but I wanted to display the homemade lead came. Instead of a frame I attached copper hooks and hung the glass from chain.



My version



Original photo I took while at the Cloiseters

BIBLIOGRAPHY FOR THIS PIECE OF GLASS

(research folder has its own bibliography)

- 1) Timothy B. Husband, (phone conversation) Curator at the Cloisters, Metropolitan Museum of Art, New York City, New York.
- 2) The Metropolitan Museum of Art Bulletin Fall 2001, Volume LIX, Number 2 (ISSN 0026-1521), , Published quarterly. Copyright ? 2001 by The , Metropolitan Museum of Art, 1000 Fifth Avenue, New York, N.Y. 10028-0198
- 3) <http://www.metmuseum.org/collection/the-collection-online/search/473277>.

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